REMARKS

This Amendment and the following remarks are intended to fully respond to the Final Office Action mailed May 23, 2006. In that Final Office Action, claims 1-7, 20-26 and 30-39 were examined. Claims 30-39 have been withdrawn from consideration, and claims 1-7 and 20-26 were rejected. More specifically, claims 1-7 and 20-23 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement; and claims 1-7 and 20-26 were rejected under 35 U.S.C. § 102(b) as being anticipated by Perlman (USPN 4,864,559).

In this Response, claims 1 and 20 have been amended; no claims have been added; and no claims have been canceled.

Election/Restriction

Applicant acknowledges the examiner's withdrawal of claims 30-39. Applicants specifically reserve the right to file divisional applications on withdrawn claims 30-39.

Claim Rejections – 35 U.S.C. § 112

Claims 1-7 and 20-23 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

The examiner rejects previously amended claims 1 and 20 for incorporating the unsupported limitation of "*independent of hierarchical relationships*". Claims 1 and 20 are amended herein under 37 C.F.R. §1.116 to remove the lack of compliance with the formalities specified by 35 U.S.C. § 112, first paragraph. Claims 2-7 and claims 21-23, which depend from claims 1 and 20 respectively, are now believed to be in proper and allowable form. Accordingly, Applicant respectfully requests withdrawal of the rejection.

Claim Rejections – 35 U.S.C. § 102

Claims 1-7 and 20-26 were rejected under 35 U.S.C. § 102(b) as being anticipated by Perlman (USPN 4,864,559). Applicant respectfully traverses the Examiner's rejection under 35 U.S.C. § 102(b), on the grounds the Perlman does not anticipate the present invention because it does not teach or reasonably suggest each and every limitation of the pending claims. More

specifically, Perlman does not disclose a partial view for each node as required by amended claims 1 and 20.

Regarding claims 1-7 and 20-23:

In the current Office Action (mailed 5/23/2006) the Examiner considers and rejects a prior argument Applicant presented to distinguish the "partial view" from the teachings of Perlman. The Examiner states, "These nodes each contain a multicast neighbor list stored in a forwarding database, which is a corresponding list of known neighboring nodes. The multicast neighbor list in each node is a specific 'partial view' of nodes connected in a network." (5/23/2006 Office Action, "Argument A", p. 6-7). Applicant respectfully disagrees.

Amended claim 1 recites, in part:

> ...sending the received message to a plurality of other nodes identified in a **partial view**, wherein the **partial view** is specific to each node, resides locally and identifies a subset of the other network nodes, wherein the subset may comprise any of the network nodes.

Applicant has reviewed Perlman at the cited references and elsewhere but find no teaching or suggestion of the claimed "partial view." While Perlman may teach a forwarding database (Perlman, FIG. 3, element 330) which is located on each node (Perlman, col. 4, line 65 – Col. 5, line 24), such a teaching fails to teach or reasonably suggest the "partial view" recited in applicant's claim 1.

Perlman's "forwarding data base" is a lookup table (Perlman, FIG. 4) for "correlating different destination node addresses to corresponding links to be used to transmit messages to those nodes. This table contains the results of the spanning tree algorithm." (Perlman, col. 7, lines 35-39).

Perlman's "forwarding data base" provides a solution wherein messages are sent from a node to other nodes, all of which are known to the sending node. However, often the nodes within a network are not easily determinable by each existing node for a variety of reasons (e.g., lag time for existing nodes to be notified of the addition, deletion, or failure of other node).

> Decision process 360 is responsible for calculating a spanning tree using Dijkstra's algorithm to determine the routing forwarding data base stored in forwarding data base 330. **A spanning tree is an ordered interconnection of all**

nodes in the network. That is, all of the nodes out from a root node are arranged in order so that there are no loops within the set of pathways through the nodes.

Perlman, col. 8, lines 57-64.

In order to solve the inaccuracy present in communicating within network-aware nodes, such as Perlman, the application teaches, and claim 1 recites, the use of a "partial view". In a "partial view" a node is aware of a portion of the network and can communicate with each other node, even without knowledge of each of the other nodes.

> ...The system and method incorporates, within each node, a partial view of the entire network system. Using its partial view, each node disseminates information in a gossip-based approach by transmitting received information to all nodes identified in its partial view. **The partial view, therefore, identifies the number of nodes necessary to insure a high probability of success in disseminating information to all nodes on the network,** which may be significantly fewer nodes as compared to the overall number of nodes on the network.

Application, p. 3, lines 13-20.

Therefore, what Perlman teaches is each node having routing information (i.e., forwarding data base) to **each** other node in the network. One or more nodes are then targeted to receive a message. In contrast, the application claims a node having a list (i.e., partial view) of probabilistically determined nodes of **less-than all** other nodes in the network. Perlman's nodes, with knowledge of each other node on the network, fails to anticipate claim 1 where nodes communicate with potentially each other node without first having knowledge of each other node.

For at least the reasons presented above, claim 1 is believed to be allowable. Claims 2-7, which depend from claim 1, are believed to be allowable for at least the reason that they recite further limitations of claim 1. Claim 20 is believed to be allowable for reasons similar to those presented above for the allowability of claim 1. Similarly, claims 21-23 are believed to be allowable for at least the reason that they depend from claim 20.

<u>Regarding claim 24:</u>

Claim 24 recites, in part, "…an application-based broadcast protocol using a gossip-based algorithm…". The Applicant previously argued the distinction between Perlman's algorithm and the "gossip-based algorithm" to which the Examiner responds:

> "Although Perlman does not use the term 'gossip-based algorithm", Perlman does teach this algorithm as defined in page 2 of the Applicant's specification, which states that:
>
> > Gossip-based protocols essentially rely on one primary assumption: **when a node receives a new message, the receiving node forwards the message to a random collection of other nodes**. In a typical scenario, **each node that receives the information is responsible for conducting the information on to a predetermined number of other nodes, e.g., ten other neighboring nodes in a network having one hundred thousand nodes**. Furthermore, gossip-based algorithms do not require back-and-forth communication between nodes, which would significantly impact performance. Instead, each node simply passes the information along without attempting to determine if the receiving node has already received the information. (Examiner's emphasis).
>
> Perlman teaches that nodes can communicate indirectly or directly with other nodes in the network by forwarding messages. Nodes can also send multicast messages directly to all nodes in a rage of nodes or to nodes in the entire network. (See [Perlman] column 1, lines 44-65, column 5, lines 1-25, column 9, lines 3-20)."
>
> 5/23/2006 Office Action, "Argument B", page 7.

Applicant respectfully disagrees. Not only does Perlman not use the term "gossip-based algorithm" but the algorithm Perlman does use is considerably different from the "gossip-based algorithm." The citations provided by the Examiner provide support *for* the allowability of claim 24 over Perlman. The ability for a node to communicate both directly and indirectly with other nodes is not a distinguishing result of utilizing a gossip-based algorithm. Any method for communicating over a network would be seriously impaired if it allowed only direct or indirect communication.

More distinguishing characteristics of a "gossip-based algorithm," are now discussed. In particular, the Examiner emphasizes that the application states, "…when a node receives a new message, the receiving node forwards the message to a **random collection** of other nodes." The Applicant concurs. Perlman's deterministic spanning-tree algorithm fails to teach or suggest the

sending messages to a random collection of nodes. Perlman fails to teach or suggest anything but a deterministic method of selecting a path to a recipient node from all network nodes.

For at least the reason presented above, claim 24 is believed to be allowable.

Regarding claim 25:

Claim 25 recites, in part:

a first identification field...;
a second identification field...;
wherein the first and second identification fields represent a partial view
of the network environment; and wherein the data structure is used for a gossip-
based communication between the nodes in the network.

The Examiner utilizes previously cited references in Perlman to reject claim 25. Applicant respectfully disagrees.

For reasons presented above, such as those distinguishing a "partial view" (*see* Regarding claims 1-7 and 20-23, *supra*) and "gossip-based algorithm" (*see* Regarding claim 24, *supra*) over the teachings of Perlman, claim 25 is believed to be allowable. Claim 26, which depends from claim 25, is believed to be allowable at least for reciting additional limitations of claim 25.

Conclusion

It is believed that no further fees are due with this Response. However, the Commissioner is hereby authorized to charge any deficiencies or credit any overpayment with respect to this patent application to deposit account number 13-2725.

In light of the above remarks and amendments, it is believed that the application is now in condition for allowance and such action is respectfully requested. Should any additional issues need to be resolved, the Examiner is requested to telephone the undersigned to attempt to resolve those issues.

Dated:_____

Respectfully submitted,

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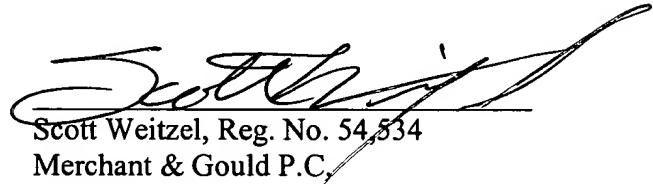
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